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CENTRAL INTELLIGENCE AGENCY

REPORT NO.

INFORMATION REPORT

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SUBJECT Further Development of Jet Power Plants by
German Experts in PW Camp near Moscow

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25X1X 1. The camp was a branch camp of Camp No. 7027 and was situated near KURYAKINO, two to three miles northwest of MOSCO". Until late in 1947 there were about 60 German engineers in the camp, later about 35. Eng. D. Manfred CHRISTIAN, formerly Argus-Flugmotorenwerke, BERLIN was head of the working group.

2. Tasks and Employers

This technical unit was to make drawings for the improvement of jet-propelled aircraft. Turbo power units with air screws were the chief subject of this work. Rough sketches were made in the camp, taken over by Eng. D. CHRISTIAN, passed to Major SMEVSKI, who had them copied at a tracing office and then brought the copies to the camp. There they were stamped "TB4" (Technical Bureau No. 4) and "Sekretno" ("secret") or "Sovershenno sekretno" ("top secret") and forwarded to Major SMEVSKI, who passed them on to Colonel KURIEV.

At a work conference, Dr. CHRISTIAN covertly mentioned that he had had conversations with General KABULOV, chief of the PW camps, Minister BULGANIN, and other leading persons of the Russian aircraft building industry.

Copies of the drawings prepared in the camp were forwarded to the following quarters:

TsIAM (Tsentralny Institut Aviatsionnikh Motorev), an aircraft factory well known under the name of Zavod 46, east of MOSCO", where jet power units were made.

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TsAGI
VIAM
MAP (Ministerstvo Aviatsionnoi Promyshlenosti).

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3. List of Personnel

The following experts were employed:

Eng. D. Manfred CHRISTIAN

Wolfgang CHRISTIAN, son of Dr. CHRISTIAN

Eng. D. Bodo JONDAN, formerly employed at a German factory producing measuring instruments and gears, said to be Dr. CHRISTIAN's substitute.

Graduate engineer Karl LASTENS of GOMISBERG, a specialist in pump and compressor construction.

Eng. D. Frederik WERSCHULZ, formerly of WEHNTIGRODE testing station of German Air Force, probably came from BERLIN.

Graduate engineer FRITZ.

Eng. Paul ZENKE, probably from BERLIN.

Dr. Alfred SCHICHT, a mathematician, from Sudetenland.

Michael MEYER of MANNHEIM, interpreter.

These persons were said to be in the camp until July or August 1948. According to statements by two former PWs,

25X1X these persons each got 1,000 rubles and were taken somewhere by plane. From conversations the two ex-PWs had with Major SMEVSKI, they inferred that the places were GORKI or KAZAN. One afternoon at about 1 p.m., when the departure of the nine persons had been fixed, Major SMEVSKI told the group that it was too late to fly as far as KAZAN. Source believed that the final destination was not KAZAN or GORKI but another industrial center where jet planes are made.

The following technicians were employed in the camp and belonged to the staff of Dr. CHRISTIAN until June 1948:

Erich MEYERLE, BERLIN, Eastern Sector

Heinz MIRUS

Rudolf WOLF, FRANKFURT/Main

Eng. Guenther RETTSCHLAG, GERA/Thuringia

Graduate engineer Siegfried GUNDERMANN, ALtenBURG/Thuringia

Eng. Gustav LUKAS, ROHREWEELS

Hans HORN, interpreter, HANNOVER.

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The following ex-PWs who had been removed from this camp as early as late 1947 were remembered:

Eng. Hermann SCHNEPKERS, ESSEN
 Eng. Eugen KIRCHNER, MUNCHHEIM/Teck (allegedly sent home)
 Eng. TROESKEN, ESSEN
 Graduate engineer Helmut FRITZ
 Graduate engineer DIEMER
 Graduate engineer Moritz ARNDT, EISENBERG near HALLE
 Walter LAMPE, CULIE
 Eng. WEGHN
 Eberhard BREIER, formerly test pilot of the Hirth-Aircraft Works.

Graduate engineer KASTING is still in captivity and wrote to his wife in GOETZEN from his camp under his postal number 3656. The nine people of the first-named group may be staying there also.

The theoretical calculations for the drawings were checked by the Soviet Professor STRAKHOVICH, who was also a convict in the camp and who speaks good German.

4. Target and Output Figures (see Annexes 1 and 2):

The purpose of the technical drawing work was the creation of a turbo-propeller unit, called in Russian "TRDV" (Turbo-Reaktivny - Dvigatel Vinton). The installation of this propelling unit was intended for long-distance transport and large aircraft of every description; 4-6 power units were to be fitted into the wings. This power unit aimed at a twofold improvement, viz:

a. The first combustion chamber leaves an excess of oxygen required for the second combustion chamber.

b. The single combustion chamber is superseded by an annular combustion chamber.

The extent to which the drawings had been approved by the competent Ministry or the Soviet aircraft industry could not be learned or whether they had been realized in practice. The technical data concerning the output of the projected power unit were as follows:

Engine power	about 5,000 HP (?)
Number of revolutions	n = 9,000 RPM
Air flow	about 16 kg/sec (?)
Outer diameter of compressors	about 600 mm
Length of compressors	about 1,200 mm
Number of compressor stages	12 stages
Compression ratio	about 1 : 7
Forward compressor bearings:	
2 Radialball bearings	100/180/43 mm
Near compressor bearing:	
1 ball bearing (radial)	100/180/45 mm
Turbine bearing:	
Radial bearing (ball bearing)	100/180/43 mm 90/ /40 mm
Auxiliary gear:	
1 starter	power: about 30-40 HP 4 cylinder two-cycle Otto engine.

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Starting at about 300 RPM over reduction gears.
(Designer: Dr. CHRISTIAN)

2 compressed air compressors	900 watts and 1,000 watts
1 oil pump	Russian make
1 fuel pump	Russian make
1 revolution regulator	Designed for engine
1 tele-tachometer	Russian make
Drive of auxiliaries	personal design
	of unknown design
	Number of revolutions
	n = 34,000 (sic) RPM was
	probably altered.

The planned gear was to reach a length of about 6-7 meters and to weigh about 2½ tons (?).

The first nine stages of the compressor were to be of light metal, the last three stages of steel, the compressor casing of light metal, presumably Silurin, the turbines of high grade alloy steel similar to the British Nimonic, the other parts of steel sheets. The guide blades were to be of ceramic material.

5. Late in 1947 the Soviet Navy Department ordered research to be made to find out if it would be practically possible to fit PT-boats (speedboats) with jet power plants of the two types described in Annex 5 (diagrams 4 and 3), the idea being that the reduction gear was to be connected to the two screw propellers, where one turbine was to drive one screw over a gear. One or two Diesel engines were used for starting or maneuvering purposes.

6. Means of reference:

The work was done with the aid of several British and American technical papers, one Swiss and one Russian technical paper. Except for the Russian paper, [REDACTED] the following 25X1X papers had been used:

Aviation, The Iron Age, The Engineer, Popular Mechanics, Popular Science, The Marine Engineer, Ordnance, The Aeroplane, Welding, and Brown-Boveri.

Foreign technical publications (censored), technical manuals, and Mulfmann drawing machines were available.

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Comment:

a. In the whole the statements of the report are correct*.

b. CHRISTIAN's stay in the Specialist Camp 7027 near Krasnogorsk and his appointment as head of a group of designers composed of German specialists who were entrusted with the project of a new kind of power plant, has been confirmed. [REDACTED] CHRISTIAN had been removed from Camp 7027 with his group late in 1947 and transferred to TOMILINO southeast of MOSCOW. As to his assistants, only the deportation of EBERGHEULZ, von KILLISCH-HORN, and DIEMTER have been reported before.

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c. The development of a turbo-engine propeller jet power unit with an output of 5,000 HP (corresponding presumably to a speed of about 340 miles-hour at an altitude of about 20,000 feet) would meet the Russian requirements for the power unit of a long-range bomber and seems to be credible. (As we infer from previous reports, the Soviets ordered the DESSAU Special Bureau No. 1 to develop an internal-combustion-engine-and-jet power unit as early as 1947. This project was only in its early development in October 1946 when Special Office No. 1 was transferred. It is not known whether this project has progressed or was realized in the meantime. It shows, however, the interest of the Soviet Union in PTL-power units.)

d. The use of two annular combustion chambers connected in series for the complete utilization of the insulation air for the combustion will probably encounter certain difficulties due to insufficient heat control of the material. The use of a gasoline-air mixture without an excess of air would raise the temperature of the exhaust gases to such an extent that the existing material would hardly permit their control. The use of ceramic materials has often been reported, especially from KUIBYSHEV.

e. The report also shows under what difficult conditions the d rofited specialists are forced to develop new gears. In this case it can only be the question of the theoretical elaboration of preliminary projects, which will only be checked and tested elsewhere. Any difficulties arising during the tests being considered in most cases as the result of sabotage according to Soviet mentality, such new designing in seclusion and "without any laboratory aid means a heavy strain on these specialists.

f. It is not possible to take a stand concerning the tests on the propulsion of PT-boats by gas turbines, as mentioned in para 5, which are being carried out by order of the Soviet Navy Department. A similar arrangement in submarines is the propulsion by Walter turbines.

g. Special attention is called to the reference aids mentioned in the last paragraph in connection with the working conferences of the designers. The extremely liberal publication of the latest results of research and design on the part of American and British technical papers furnishes the Soviets with most valuable documents for their intended future development.

5 Annexes: 1.) Jet power plant
2.)
3. Gas turbine for PT boats

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